

Innovation Fund Programme

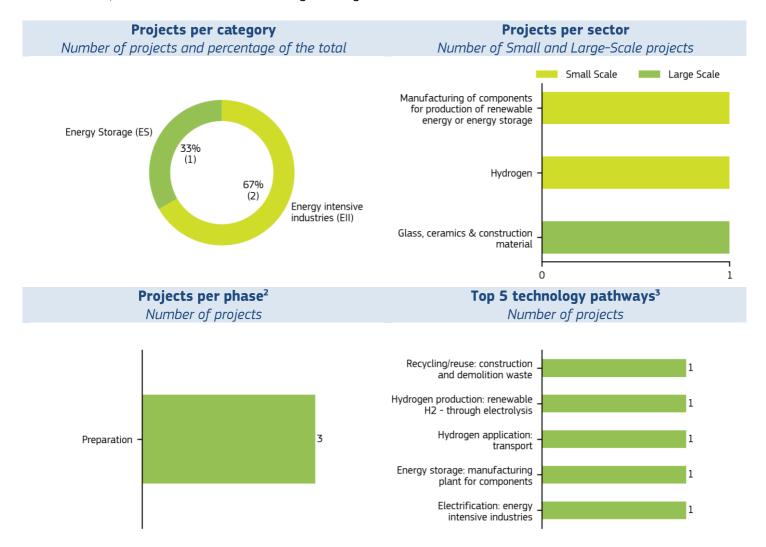


Overview of awarded projects in Czechia

Funded by the revenue of the EU Emissions Trading System, the Innovation Fund's goal is to help businesses investing in innovative low-carbon technologies with significant GHG emissions reduction potential.

The Innovation Fund currently supports **3 projects** located in Czechia, which will contribute to the decarbonisation of European industries with a total expected GHG emission reduction of **350,249 t CO₂ equivalent in the first 10 years of operation.**

The total Innovation Fund grant in Czechia is of EUR 20.3 million, out of the total relevant costs of EUR 43.4 million, as defined in Art 5 of the Delegated Regulation 2019/856 on the Innovation Fund¹.



¹ OJ L 140, 28.5.2019, p. 9.

² Preparation means the period before financial close is reached; construction means the period between financial close and entry into operation; operation means that the construction is finished and the project has already started production.

³ Projects may employ several technological pathways, only the top 5 per country are kept in the graph. State of play: 02/04/2024

List of awarded Innovation Fund projects in Czechia

Acronym	Title	Sector	Start date	Project phase	Beneficiaries	Innovation Fund grant (EUR million)	Expected GHG emission avoidance (t CO2eq)
Large Scale						12.2	92,500
Volta Project	Hybrid mid-sized pilot furnace for flat glass	Glass, ceramics & construction material	01/04/2023	Preparation	SGG AGC CZECH AGC	12.2	92,500
Small Scale						8.1	257,749
Listlawelbattcool	Light and structural laser welded battery cooler	Manufacturing of components for production of renewable energy or energy storage	01/09/2022	Preparation	Valeo Térmico Valeo Žebrák Val	3.7	223,570
VOZARTEK	Initiating the Production of Green Hydrogen for Transport and Other Applications in the Czech Republic	Hydrogen	01/06/2023	Preparation	Veolia Energie	4.5	34,179

Project overview

Acronym	Title	Abstract
Listlawelbattcool	Light and structural laser welded battery cooler	Valeo Systemes Thermiques plans to build a new battery cooler production line for electric vehicles (EVs) that delivers significant reductions in CO2 emissions compared to the current state-of-the-art technology. The project will demonstrate that the current controlled atmosphere brazing process, which is highly energy intensive, can be substituted by a laser welding process when the right aluminium material is used. This manufacturing process will reduce the energy consumption by 50% as well as the thickness of the product, while increasing the recyclability rate of the raw material.
		Laser welding technology is already used to weld the structure of the vehicle. The novelty of this project is to use this technology to produce aluminium heat exchangers that can assure liquid circulation for cooling with no leakage. The project will therefore demonstrate the maturity of this technology to meet these requirements, thus leading to potential use for other sectors, such as home appliances. From 2027, and over the ten-year operational lifetime of the project, the production of three million battery cooler units will result in the avoidance of 223 570 tonnes of CO2 equivalent greenhouse gases emissions.
		Aluminium is used for heat exchangers due to its conductivity properties and light weight. However, aluminium has a high CO2 footprint (aluminium = 8.1 kg CO2 eq / kg) which creates a challenge for decarbonisation. This flagship project will work to address this challenge through the use of aluminium with 40% recycled content, which reduces the CO2 footprint. The use of alloys (S5XXX, S6XXX) with more sustainable production also enhances the mechanical properties. This allows for reduced material thickness and subsequently reduced carbon footprint: using 20% less aluminium weight on each cooler.
		The use of recycled aluminium and alloys also improves the carbon footprint in the upstream process; the laser welding technology reduces the energy consumption by 50 % during production, and the use of an electrical vehicle instead of a conventional equivalent reduces the energy use in the downstream process (i.e., the end user). These factors combine to create a circular economy in the value chain, with a significantly reduced CO2 footprint.
		In addition to the removal of the fuel consumption, the power requirements of the system will be lowered (the laser system consumes 100 kW compared to 800 kW for an electric furnace and 3 800 kW for a gas furnace), thus contributing to the EU Commission's energy savings plans. The laser technology is a lighter process than the current long furnace process. This advantage, together with a smaller and more scalable units, allows for easy replication in different Valeo sites and different sectors, simultaneously improving their material consumption, their energy requirements, and their overall logistics.
VOZARTEK	Initiating the Production of Green Hydrogen for Transport and Other Applications in the Czech Republic	The aim of the project is to initiate the green hydrogen market in the Moravian-Silesian Region, Czech Republic. The hydrogen will be produced in 2 megawatt (MW) electrolyser powered by solar photovoltaic (PV) cells and a biomass combined heat and power (CHP) system, located in the town of Frýdek-Místek in the east of Czech Republic. After the construction stage that is part of this project, the commercial operation will begin in 2026 with an expected output volume of up to 270 tonnes of green hydrogen per year. The hydrogen will firstly be supplied to bus, train, and truck operators with the further possibility to use this hydrogen in non-transport applications, notably injection into the natural gas grid or in metallurgy. The project has the potential to reduce greenhouse (GHG) emissions by 98% compared to the reference scenario over the monitoring period of 10 years.
		The project's innovation lies in the "market initiation" ambition, and "operation optimisation" of the plant. For the latter, the combination of PV (prevalent in summer) and biomass cogeneration (prevalent in winter) makes the production of hydrogen available all-year-round. The key objective is to provide a reliable supply and guaranteed volume of green hydrogen at an affordable price in order to kick-start the market. This will encourage the demand side to invest in green hydrogen applications and generally inspire new stakeholders to grow the hydrogen market.
		The green hydrogen will be produced in a 2 MW proton exchange membrane (PEM) electrolyser, installed within the existing CHP plant. The selected size is adequate for the purpose of the project to help the local market startup and the annual hydrogen output from the initial electrolyser will be sufficient to replace diesel in transport applications to the scale of about 30 buses or 5 local trains. However, it has a potential to be expanded at the current site and also to be replicated elsewhere in the region and beyond.
		The project's objective is to demonstrate that green hydrogen is one of the most promising ways forward to transform the economy of the coal region – with a rapid scale up from the theoretical (at present) to the commercial (in only 3 years). The Moravia-Silesian region is one of the key EU regions that is transforming from coal-based heavy industry. The VOZARTEK project will help to initiate the renewable hydrogen value chain within the region to support this transition. The location at the existing CHP plant will further increase the energy efficiency through the use of residual heat from the hydrogen production within the existing district heating system.
		The VOZARTEK project aims to have a positive impact on the development of the Moravia-Silesian region by helping to initiate a regional renewable hydrogen value chain. The project will also contribute to the development and scale-up of innovative technologies in the region.
Volta Project	Hybrid mid-sized pilot furnace for flat glass	The objective of the project is to design and build a novel hybrid glass furnace combining electric melting and oxy-gas combustion. The integrated design provides an alternative to the mostly natural gas fired flat glass industry. The highly electrified furnace provides a more cost-efficient and scalable solution to abate the CO2 emissions of the flat glass industry compared to other clean alternatives, such as a full clean hydrogen combustion option. The new design will be piloted through a partnership with Saint-Gobain in AGC's existing

Acronym	Title	Abstract
		patterned glass furnace in Barevka (Czech Republic). The hybrid furnace is expected to reduce the pilot site's scope 1 and 3 emissions by 75% compared to the reference scenario. This first-of-a-kind technology consists in an all-electric melting technology and oxy-gas combustion that are combined in an integrated furnace. This enables a 50% electrification rate whilst ensuring the high-quality standards that are necessary to float glass. Furthermore, sustainability model of the project will be strengthened by substituting virgin raw materials with up to 100% recycled glass. The flat glass sector accounts for ~4.6 million tonnes of CO2 equivalent of direct emissions annually in Europe (~75% from natural gas combustion and ~25% from raw materials). The novel furnace is therefore expected to reduce the energy-related emissions, resulting in a planned emission reduction of over 193 000 tonnes CO2 equivalent over the first ten years of operation.
		The project will contribute to the European goals set out in the REPowerEU communication, by reducing fossil fuel consumption in industry and transport, through innovative technologies and electrification. The project is also expected to have a positive socio-economic impact at regional level. While the Barevka site currently produces ~90 tonnes of glass a day, the project has great potential for scalability through technology uptake at bigger production sites (600-800 tonnes daily). Furthermore, there is significant replication potential throughout Europe, as the industry currently produces ~9 million tonnes of glass annually, and is a critical supplier to the construction, automotive, and consumer goods industries. Therefore, the technology could promote the upstream decarbonisation efforts of critical sectors (construction and automotive) while safeguarding the competitiveness of the EU flat glass industry.